

## CLAIMS

1. A method for producing calcium fluoride, said method comprising introducing a fluoride-containing effluent together  
5 with an aqueous calcium chloride solution into a reaction system under an acidic condition with hydrochloric acid to deposit calcium fluoride particles of a comparatively large size with a purity of 98% or higher, and then recovering said particles.

10 2. The method according to claim 1, wherein said acidic condition with hydrochloric acid is pH 2 or lower.

3. The method according to claim 1, wherein the fluoride-containing effluent and/or the aqueous calcium chloride solution  
15 contain hydrochloric acid, or an aqueous hydrochloric acid solution is separately introduced continuously or intermittently into the reaction system.

4. The method according to claim 1, wherein the reaction  
20 is conducted at room temperature or from 30 to 90°C.

5. The method according to claim 1, wherein the calcium fluoride product has an average particle size of 5 to 300  $\mu\text{m}$ .

25 6. A reuse method comprising reacting a part or all of hydrochloric acid, which is contained in the solution after recovery of calcium fluoride formed by the reaction, with a calcium salt such as calcium hydroxide, calcium oxide and calcium carbonate to form calcium chloride, and using the formed  
30 aqueous calcium chloride solution as the aqueous calcium

chloride solution according to claim 1.

7. A method for producing calcium fluoride, said method comprising introducing a hydrofluoric acid-containing effluent  
5 together with an aqueous calcium chloride solution into a reaction system under an acidic condition with hydrochloric acid to deposit calcium fluoride particles of a comparatively large size with a purity of 98% or higher, and then recovering said particles.

10 8. The method according to claim 7, wherein said acidic condition with hydrochloric acid is pH 2 or lower.

9. The method according to claim 7, wherein the  
15 hydrofluoric acid-containing effluent and/or the aqueous calcium chloride solution contain hydrochloric acid, or an aqueous hydrochloric acid solution is separately introduced continuously or intermittently into the reaction system.

20 10. The method according to claim 7, wherein the reaction is conducted at room temperature or from 30 to 90°C.

11. The method according to claim 7, wherein the calcium fluoride product has an average particle size of 5 to 300  $\mu\text{m}$ .

25 12. A reuse method comprising reacting a part or all of hydrochloric acid, which is contained in the solution after recovery of calcium fluoride formed by the reaction, with a calcium salt such as calcium hydroxide, calcium oxide and  
30 calcium carbonate to form calcium chloride, and using the formed

aqueous calcium chloride solution as the aqueous calcium chloride solution according to claim 7.

13. A method for recycling calcium fluoride, characterized  
5 in that the calcium fluoride recovered by the method according to claim 1 or 7 is supplied as a raw material for producing hydrogen fluoride.